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**UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT**

# UNCTAD ad hoc expert group on internalization of environmental externalities
## Report of the meeting
## Co-sponsored by the International Academy of the Environment

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## Detailed Report of the Meeting

**Monday, the 13th of February**

**Mr John Cuddy**, Officer-in-Charge of the Commodities Division and Coordinator of Sustainable Development of UNCTAD, chaired the first day's sessions.

As an introduction, the Officer-in-Charge of the Commodities Division and Coordinator of Sustainable Development of UNCTAD pointed out the main three aims of the expert group. First, a discussion about five papers written by experts in the field of internalization. Second, an exchange of views about the provisional outlines of two country studies on Egypt and South Africa. Third, a discussion on further work in the field of internalization, to be carried out both by UNCTAD and UNEP.

### Internalization of environmental damages in agriculture: Effects on environmental and economic variables

**Larry Karp, Associate Professor, University of California, Berkeley**

Karp's presentation was based on his paper that comprises four principal chapters addressing different aspects of the trade-environment connection. The focus was on the environmental damage caused by agricultural production and processing.

The presentation focused mainly on chapter 2 of the study, which addresses several aspects of the relation between internalization policies and international trade. Three types of considerations are of particular relevance: (i) to which extent the internalization of external costs leads to a loss of competitiveness and/or environmental leakage effects; (ii) the importance of income effects due to internalization; and (iii) to which extent trade policies should be used in order to achieve environmental targets.

With regard to competitiveness and leakage effects, the most interesting issue is the likely magnitude of these effects. On the basis of a simple comparative statics supply-demand model, which provides rough estimates of the effects of internalization on **market share** and **export earnings**, one can conclude that the magnitude of the effects is likely to be quite small[1]. According to the author, this illustration (despite its limitations) should at least make us sceptical about the claim that international trade is an impediment to domestic internalization policies. That claim may be true where: the internalization policies require a very large implicit tax; world demand and other producers' supply are quite elastic; and the reforming country retains a very small part of the market.

If one supposes that pollution is strongly correlated with aggregate production, one can conclude on the basis of the same model that the **leakage** (or relocation) **effect** is likely to be quite small as well.

Some of the worst environmental problems are associated with poverty. With regard to the **income effects** of internalization policies, Karp argues that having to satisfy basic needs in the current period makes producing countries unable to look after the environment. What appears to be a short-sighted behaviour may simply be the effect of a binding constraint on current consumption. In this

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[1] Clearly, even under fairly pessimistic circumstances, where only one country (out of k countries) imposes a (10 per cent) tax, and the aggregate elasticity of supply of the (n-k) countries who do not internalize the externality is estimated at 0.8 (which is quite elastic), the loss in market share is only about 7 per cent, and the loss in revenue 4 per cent. However, if half of the producers impose the tax, each of these still loses market share, but their revenues increase thanks to the price increase.

case, charging producers a higher price for an environmental input may exacerbate rather than correct the externality.

This can be explained using the concepts of income and substitution effects. A tax on the environmental input causes producers to use less of it; this is the substitution effect. However: the tax also decreases producers' real income. If the environment is a normal good, the loss in real income leads to less environmental preservation. The income and substitution effects work in the opposite direction, so the net effect of internalization policies is ambiguous.

Income constraints are likely to be larger in poorer countries, and effective internalization policies might require substantial transfers. In order to relax the income constraints, there is a case for the internalization of external costs in one part of the world, so that income constraints can be relaxed in other parts of the world. In summary, the important message for policy makers is that the promotion of environmental goals requires both internalization policies and income transfers, both at a national and an international level.

With regard to **the use of trade policies in order to reach environmental objectives**, the author argues that however seductive, this temptation should be resisted. General trade restrictions are as likely to harm the environment as to benefit it. Trade restrictions that are narrowly targeted to environmental objectives can in theory improve both the environment and economic welfare. However, the history of trade policy makes one sceptical about the likelihood of this actually happening. Production and consumption taxes are less distortionary.

Apart from mentioning the results outlined in chapter 2 of his paper, Karp also stressed the importance of the use of **dynamic models** for addressing the consequences of the introduction of internalization policies, because environmental problems induce long term and cumulative effects. If countries in the South produce commodities without taking the external costs into account, their environmental stock will be negatively affected in the long run. This will eventually affect the welfare of importing countries in the North as well, through the price rises that it will entail.

In a static model, if one country in the South (country A) decides to pursue an internalization policy, this will increase the welfare of other countries (for example country B) in the South that decide not to internalize. In a dynamic model, it will be more attractive only in the short term for a non-internalizing country B to degrade its environment. In the long run, however, the unilateral internalization policy by country A is likely to have negative implications for country B. These findings support the view that the non-feasibility of unilateral internalization policies, and the ensuing need for multilateral solutions, could be overstated.

During the discussion that followed, concerning the model, it was questioned if the use of an open-market context was realistic[2]; if technological aspects with a bearing on the productivity of commodity production should not be included; how the quality-effect of products could be taken into account; and if aspects related to dislocation of labour should be considered as well. Furthermore, the model is not yet equipped with a sufficiently well developed time frame, so that the durability of both environmental effects and policy measures is not accounted for in a precise way. Moreover, it was argued that internalization does not necessarily lead to a higher commodity price. It was also mentioned that in practice, the effective tax rate was of crucial importance. Finally, it was questioned why transboundary and global environmental effects were not accounted for.

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[2] Karp replied that to the extent that restrictions to trade existed, this would decrease the elasticities in the model.

In relation to the outcomes with regard to the competitiveness effects, the importance of the supply elasticity was stressed. Clearly, on the basis of a "back of the envelope" calculation, a supply elasticity of 1.1 (which seems to be realistic in the case of debt-driven countries), would lead to a loss of market share of 10 per cent, and a 6,5 per cent income loss, implying more important impacts than predicted.

Furthermore, it was argued that income and internalization effects can be contradictory. Other issues that were mentioned were the difficulties associated with the estimation of environmental costs, the importance of removing market and policy failures, and the "prisoner dilemma" which induces cheating by countries that are confronted with the choice of introducing internalization policies. Finally, a doubt was expressed on the likelihood of governments using the revenue generated through environmental taxes for environmental purposes.

Several suggestions were made with regard to further work that should be undertaken by UNCTAD. First, UNCTAD should develop context and product specific guidelines for internalization. Second, it should undertake studies on income-and-environmental trade-offs, in particular in the medium and long term. Third, more attention should be given to the effects of internalization policies on competitiveness. Fourth, UNCTAD could play a more important role in data management.

## Internalization of externalities in US agriculture

**Paul Faith, World Resources Institute, Washington D.C.**

In his presentation, Paul Faith addressed the question of what sustainable agriculture means, and how it can be incorporated into economic analysis; in particular within the framework of natural resource accounting systems.

In his paper, Faith examines the above mentioned questions in six case studies: three from developing countries - India, Chili, and the Philippines -and two from the United States. The aim of the studies was to quantitatively reformulate the many qualitative definitions of sustainable production practices in use, and to provide a basis for further economic and policy analyses.

For the United States, Faith presented an economic model augmented with alternative cropping practices and environmental coefficients[3]. One of the main objectives of the exercise was to determine the changes under different scenarios in indicators such as farm income, government income, and overall environmental performance. Another aim was to assess the impacts of cuts in agricultural subsidies, as envisaged in the new Farm Act which will be discussed in the US this spring. Another issue was how the effectiveness of green policies[4] could be improved. Important questions were how sustainable practices would compete with predominant practices, and how the introduction of environmentally friendly practices would affect the environment.

A main conclusion of the exercise was that the introduction of alternative management practices would lead to considerable cost savings for both farmers and government, increased farmer income, and an improvement of the environmental performance.

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[3] The initial version of the 10 region, crops, livestock and policy model was augmented with alternative crop production activities such as tillage, input use, rotation, e.a.; and environmental impacts for each of the 45 Land Resource Regions and for each activity (included were soil erosion, nutrient runoff, soil carbon, N leaching, energy use, long term crop yields, etc).

[4] Elements of the "green" policies introduced in the US in 1990 are "green payments", and subsidies for best management practices. However, budget cuts in the programme are expected.

Moreover, Faith argues that the model shows an increased effectiveness of the green environmental policy programme, under the assumption that existing policy distortions were reduced[5]. According to Faith, in many cases, governments rather distort markets when they get involved in agricultural practices. Therefore, it is very important that policy failures are removed before the implementation of new internalization policies[6]. This policy issue is one of the reasons why the author has not addressed the internalization of environmental costs in the model. According to Faith, the political situation in the US will not allow internalization for a decade or more.

During the discussion, it was brought forward that the large amount of data was sometimes confusing, and that it was not always easy to identify the different variants. Moreover, it was mentioned that the conclusions were country-specific and could not be generalized to other countries, because of the divergent institutional situations. Furthermore, a question was raised about the extent to which the practices included in the model were already available, and to which extent the removal of those technologies that were not yet in the market would modify the results.

Other comments were made about the potential for introduction into the model of alternative policy options, the implications of the use of a different discount rate, the analysis of demand-effects due to more sustainable production practices, the existence of positive environmental externalities related to alternative farming practices, and the need for the extension of the model in order to allow for (environmental) effects on non-agricultural sectors.

The participants attempted to find reasons why farmers had not automatically shifted to more sustainable production practices, despite the financial gains that could be derived from them. Potential causes pointed out were the myopic and short term bias in their perceptions, the existence of wrong incentives, issues related to the allocation of property rights, long lasting transition periods, and information gaps.

Agreement was expressed on ways for governments to promote alternative practices (apart from those aimed at the removal of policy failures). The most important measures mentioned were financial support during transition periods, an improvement in the distribution of information, market expansion through government purchases, and the investment in R&D for new practices.

## Developing Country Primary Exports and the Polluter Pays Principle: A Case for International Policy Coordination

**Henk Kox, Department of Economics, Free University, Amsterdam**

In his study and presentation, H. Kox advocated the need for a multilateral approach towards internalization in developing countries, through the creation of International Commodity-Related Environmental Agreements (ICREAs) for individual primary products. His arguments were supported by extensive research work on the issue and illustrated by the findings of three case studies undertaken for cotton, copper and cocoa.

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[5] Under a scenario with substantial cuts in subsidies, the author finds a situation characterized by improved environmental conditions, and by a marginal negative impact on farmers' income.

[6] In a Pensylvania case study, for example, the conventional cornsoybeans production system had soil depreciation values that were larger than the best alternative by $33 per acre per year and a net operating income lower by $6 per acre per year. Yet farmers would still adopt this system because the government subsidy more than made up the difference in the short term.

Kox was of the view that commodity exports are still of great importance to a number of developing countries, that the ecological impact of primary commodity production may often be important[7] and that internalization of environmental externalities may result in tangible increases in production costs, varying, however, among commodities and countries[8].

The incorporation of natural resource costs and pollution avoidance costs into the prices of goods is considered a desirable policy goal. In 1972, OECD countries adopted a set of guidelines reflecting the Polluter Pays Principle (PPP) as a basis for their environmental policies. Polluters would react to such policies either by absorbing internalization costs or by passing them on to their customers. In the latter case, the PPP would resolve into the User Pays Principle. It was originally supposed that trade gains and losses for different countries would, in the end, cancel out against each other.

Following the 1992 UNCED conference, the same principle was promoted for all countries, without taking into account, according to Kox, the differences between the situation in developed (OECD) and developing countries. He argued that the application of the Polluter Pays principle is likely to be more difficult in the case of developing countries, owing to two main factors.

First, the cancellation of trade gains and losses expected among the OECD countries would not take place for developing countries. DCs have to compete in international markets with many other suppliers, being usually price takers, with practically no opportunity to pass environmental costs on to users. Concerns about price competitiveness and market shares may therefore discourage them from unilateral internalization or from coordination of policies among themselves.

Second, income differences are much more important among developing countries and between developing and developed countries than among OECD member states. Consequently, the proportional importance of losses by countries because of internalization is bigger. Thus, there are significant income constraints to environmental policies in developing countries. For this reason, measures should be undertaken internationally to overcome both the income and coordination constraints.

A way of doing so may be ICREAs, defined as voluntary agreements between countries to internalise specific environmental externalities and to facilitate cooperation among producers and between producers and consumers in this regard.

Kox mentioned two different types of these agreements: (a) standard-setting ICREAs and (b) transfer ICREAs.

Standard-setting ICREAs are primarily aimed at helping to relieve the international competitive pressures during the transition period towards full internalization so that exporting countries can introduce sound environmental policies in their export sector without losing market shares and export earnings. This should be achieved through agreement among exporting countries on a minimum level of environmental standards for a specific commodity with a view to avoiding the undercutting each other's price through the use of cheaper, but environmentally damaging production methods. The participation of importing countries in this type of agreement is not necessarily required.

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[7] The amount of gross environmental damage is estimated at 10 per cent of GNP in developing countries, although not all of that is attributable to primary commodities production.

[8] Incremental costs caused by internalization range from 11 to 33 per cent of production costs for cotton, depending on the degree of inclusion of long-term effects, for cocoa they appear to represent 10-15 per cent and for non-ferrous metals around 10-13 per cent.

Transfer ICREAs represent a mechanism to achieve implementation of the User Pays Principle. Their aim is to help overcome the income constraint in developing countries through the creation of international compensation funds to finance transition to more sustainable production methods. The funds would be mostly generated through contributions from importing countries raised by levies on net imports of the particular commodity and set according to per capita income. Participation of both producing and consuming countries is therefore indispensable.

Kox then presented, in greater detail, the findings of three recent commodity studies which examined the relevance and feasibility of ICREAs for particular primary products, namely cotton, copper and cocoa.

Cotton production is characterized by high level of chemical inputs[9], costs varying among regions as a result of different production methods, and a low share of raw cotton exports from developing countries in total world exports. A large part of cotton is exported in processed form and competes with OECD products and with synthetic fibres. For these reasons, an all-embracing ICREA does not appear as easily feasible in the case of cotton. By contrast, a "mini-ICREA", which would help the poorest countries change their production practices could be useful. Sustainability criteria could also be elaborated in cooperation between producers and consumers, with a view to developing an "eco-cotton" label.

The study on copper concluded that since production is concentrated in few countries, industry structure is straightforward, and strict environmental regulations are already in place in some countries, it might be worthwhile to set up an ICREA which would concentrate on setting standards and providing funding for environmental upgrading of existing facilities to meet these standards.

According to the cocoa study, significant differences exist in environmental impact of production both among and within countries and among smallholders and large estates. As small farmers generally use less agrochemicals, opposition may be expected against internalization from large holders who would apparently be more affected. A transfer ICREA might help, in Kox's view, to alleviate this problem.

The discussion pointed to some limitations in applicability of ICREAs in the commodity area. These agreements seem to be suitable for a narrow range of commodities where international trade represents a large part of overall production, the degree of environmental damage is significant, and consequences of internalization cannot be absorbed by producers themselves.

It was further pointed out that while discussing ICREAs attention should not be diverted from other options to attain the same environmental goals. In this context, concerns were also spelled out about possible negative bureaucratic implications of additional international agreements in this area. Nevertheless, the feasibility of international agreements is likely to be facilitated in the case of global commons or consumers' interest in the security of supplies. Other reasons such as "enlightened self-interest" are much less sure to induce consuming countries to participate.

A consensus emerged from the discussion that the feasibility of ICREAs can only be established by in-depth case-by-case studies for individual commodities and therefore, more empirical work on the issue is still needed.

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[9] In India, for example, cotton accounts for a half of all pesticides use, while its share in total acreage does not exceed 8 per cent.

## Ecological tax reform: Even if Germany has to go it alone

**Michael Kohlhaas, German Institute for Economic Research, Berlin**

The study presented by Michael Kohlhaas concerns a proposal for an ecological reform of the German taxation system. Its feasibility was illustrated and assessed with the example of an energy tax.

The tax should be levied on all sources of energy with the exception of the renewable ones. The progressive rise of the tax is expected to result in a 4.5 per cent increase in energy prices in the first year of implementation reaching a 60 per cent increase in 10 years. Hence, tax revenues of a considerable size should be generated amounting to DM 9 billion in the first year and DEM 205 billion in 15 years (as compared with DM 360 billion annual taxes on wages in the early 1990s).

The introduction of the energy tax should be accompanied by revenue-neutral compensation measures to both firms (in the form of a reduction in employers' social security contributions) and to households (lump sum per capita allowance, called eco-bonus).

The overall reaction of macroeconomic variables to the energy tax would be, according to the study, rather positive. GDP should rise by 60 per cent between 1987 and 2010, despite a decrease in energy consumption by 24 per cent over the same period as a result of increasing energy efficiency. Moreover, a clear positive impact on employment is predicted, totalling 500-600 thousand new jobs created in 10 years. This should happen as a result of changing relative prices of energy and labour which would induce structural change towards more labour-intensive patterns of production. Consequently, "winners" may be found in the services sector, engineering and electronics which will see their costs fall and competitiveness increase. By contrast, the losers are supposed to be concentrated in highly energy-intensive industries such as steel, chemicals, and non-ferrous metals.

Main concerns about the energy tax were expressed in relation to its impact on competitiveness and on the relocation of businesses outside the country, with negative implications for employment. The losers would naturally oppose the tax, asking to exempt energy-intensive industries from the scheme. According to the author, the acceptability of the tax could be raised through refunds of tax revenue, gradual implementation of the tax, and timely information about envisaged policy measures.

M. Kohlhaas concluded that the estimated impact of the proposed energy tax was likely to be positive both in ecological and economic terms. In reality, the effects could be even more positive given the fact that the model adopted rather conservative figures. For this reason, unilateral implementation of internalization measures might be a viable option. A positive experience of this kind could then induce other countries to follow suit. Moreover, thanks to a faster development of new technologies, the earlier the country moves towards internalization the more it will get ahead of others as regards competitiveness of its products. Consequently, long-term advantages of internalization might be more important than short-term losses.

During the discussion some scepticism was expressed about the positive expectations linked to the proposed energy tax. More particularly, findings of a similar type of analysis were mentioned regarding an envisaged introduction of a coal tax in the Netherlands. Conclusions of that exercise have been much less optimistic. In fact, it was felt that the introduction of the tax would have led to employment losses and to relocation of some industries abroad. Negative impact related to the proposed tax would have exacerbated regional as well as sectoral problems. In this context, it was suggested that models should be further disagregated and refined so as to include these employment repercussions.

When assessing impacts of ecological taxes, environmental spill-over and relocation effects should also be taken into account and other problems like acidification should be considered. At the same time, different patterns of taxes (e.g. taxing carbon content, inclusion of imported products into the scheme) and the use of alternative instruments such as tradable permits, which seem to have proved as very cost-effective in the US, might be envisaged. In Kohlhaas's view, however, taxes may be preferred, at least in the short-term, due to a higher degree of certainty over their price impact as compared with tradable permits.

**Tuesday, the 14th of February**

**Jean-Pierre Reveret**, Professor International Academy of the Environment, chaired the second day's sessions.

**Internalization of Environmental Externalities: The Malaysian Experience**

**Abdul Rahman Khalid, Department of Resource Economics, University of Agriculture, Malaysia**

A.R. Khalid introduced a "success story" in internalization of external costs in the developing country context - the case of pollution control measures in the Malaysian palm oil industry. The presentation was based on a collection of studies[10] in which trade and welfare effects, effects on production costs as well as forward and backward linkages due to internalization policies were analyzed.

The palm oil processing chain consists basically of three main actors: (a) palm growers (smallholders), (b) crude palm oil producers (CPO) and (c) refined palm oil producers (RPO) who are also exporters of palm oil. Major pollution occurs at stage (b) - organic wastes from COP mills were equivalent to almost the same amount of pollution generated by the entire population of Malaysia before control measures were introduced. For this reason, CPO became the main target of government pollution abatement initiatives.

Since 1977 effluent control in the palm oil industry has been carried out through a licensing system stipulating effluent discharge standards (for BOD[11]) for each licence holder. In order to receive a licence, firms had to comply with certain criteria as certified by an approved body. Standards were made stricter over time with a view to gradually decreasing the level of pollution. In addition to the standards, relatively high effluent-related licence fees were levied on the BOD loads exceeding the legal standard and a lower charge (flat rate) applied to loads not exceeding the standard.

The results seem to be very encouraging from both an environmental and an economic standpoint. First, pollution decreased by 99 per cent: from a BOD load of 25 000 mg/l in 1977 to 100 mg/l in 1984. Second, the whole operation resulted only in a marginal - 2 per cent - increase in CPO production costs. However, as palm oil exporters face a fierce competition in the international market, increased costs could not be passed on forwards to RPO, and subsequently to consumers, without a risk of market share losses. Therefore, the CPO sector which held an oligopolistic position finally passed a major part of the costs (around 50 per cent) backwards to the weakest element of the processing chain in terms of market power - the farmers - who saw their sales prices falling significantly. Third, as internalization costs were absorbed domestically there was no loss in international competitiveness of Malaysian palm oil. In fact, palm oil exports even rose by 136 per cent between 1977 and 1985 and Malaysia is presently the world's largest exporter of palm oil accounting for 68.3 per cent of world exports.

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[10] A.R. Khalid: Internalization of Externalities: Who Bears the Cost of Pollution Control?, The Environmentalist 1/1991; A.R. Khalid and W.A. Wan Mustafa: External Benefits of Environmental Regulation - Resource Recovery and the Utilization of Effluents. The Environmentalist 4/1992; A.R. Khalid and J.B. Braden: Welfare Effects of Environmental Regulation in an Open Economy - The Case of Malaysian Palm Oil, Journal of Agricultural Economics, 1/1993; A.R. Khalid: The Economics of Pollution Control - Does Malaysia Need Regulatory Reform?, UNEP 1993

[11] As regards the use of standards including emissions such as nitrogen, the main constraint seemed to be fact that the palm oil industry was unable to meet standards because of high related investment costs or the fact that other sectors of industry were responsible for a major part of those types of pollution which were discussed.

Factors underlying the success of Malaysian palm oil internalization may be summarized as follows:

1. During the 2-year preparatory period before the system was put into practice the government closely consulted the whole set of pollution abatement measures with industries and it also played a major role in putting the system into practice (see below).

2. Rather inexpensive pollution abatement technologies were developed soon after the introduction of the scheme, and information about their availability was disseminated through concerted efforts of government and industry. Research into mill effluent treatment technologies was also encouraged by waivers of fees for research purposes. Efforts to increase competitiveness of palm oil producers (through improving palm oil yield, finding new uses for by-products, etc.) received a boost in 1980 when the government established the Palm Oil Research Institute of Malaysia.

3. Adverse impact on incomes of processors and especially farmers has been mitigated through the use of mills' by-products/wastes as fertilizers, animal feed, biogas, etc. This provided additional income to processors and a sort of a subsidy to farmers as by-product fertilizers were sold to them at a cheaper price. Government also continued the practice of providing input subsidies to farmers. Consequently, no major loss of employment occurred.

During the discussion, it was agreed that cases like this one should be identified, analyzed and published, in order to provide evidence that environmental improvements do not necessarily need to be costly for countries in terms of losses of market share and employment. This could induce other developing countries to follow the internalization path[12].

## Internationalization of externalities: A Sectoral Analysis - Textiles

**A. Fry, J.P. Revéret, D. Burger, International Academy of the Environment**

Mr. Fry introduced the work programme of the International Academy of the Environment in the area of internalization. Since the main cause of reluctance to internalize among developing countries is the concern about the loss of competitiveness, the Academy considers that positive examples of suitable policy mixes in the field should be identified, in order to induce developing countries to change their attitude.

The Academy believes that a sectoral approach may be useful in trying to propose a policy mix for internalization. In their research they chose to focus on the textile sector.

Mr. Burger then presented the initial findings of the Academy's work in this field. First, they identified major steps in the production process (namely fibres, textiles, and the end-product stage) and analyzed major environmental impacts in each of these stages.

Second, they elaborated more on trade and production patterns trying to stress the issues of particular relevance to natural fibres (especially cotton) and man-made fibres. In this context, a typology of groups of countries was suggested, on the basis of their past and present record in the textiles production and trade.

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[12] One might dare to argue, however, that the Polluter pays or User pays principle have not been strictly observed in this "success" story. Rather the weakest actor in the palm oil production chain, which could not be made reliable for pollution generation, was forced to bear a major part of internalization costs.

During the discussion, concerns were voiced about the impacts of health standards and eco-labels on the competitiveness of developing country producers, given the fact that those measures were actually the main driving force behind their internalization efforts. Due to high costs of certification and of compliance with eco-labels criteria, exporters might not be able to find sufficiently large market niches of environmental conscious consumers willing to pay the premia. Organic cotton, for example, may imply up to 30-50 per cent higher production costs than conventionally grown crop.

A consensus was reached on the usefulness of the combination of a sectoral and a country approach in the future course of studies at the Academy. However, the high complexity of the topic might justify some more specific focus (eg. on a particular group of textiles, such as cotton) in the Academy's research in this area.

**Brief introduction of UNCTAD-UNEP work programme on internalization**

**Hussain Abaza, Chief, Environment and Economics Unit, UNEP and Mehmet Arda, Chief Environmental Issues Section, UNCTAD**

Hussain Abaza presented UNEP's activities in the area of trade and environment. The work programme submitted in May 1994 has basically 5 components, namely (a) valuation of the environment and natural resources (which is considered as a core activity), (b) natural resource accounting, (c) economic instruments, (d) Environmental Impact Assessment and (e) international policy failures. It resulted from the presentation that the main thrust of the work is on the quantitative and quantifiable dimension of environmental issues, not so much on trade. UNEP has already been commissioning or undertaking country/issues studies and intends to produce training materials on various components of its work programme, including a manual on economic instruments. The final objective would be to develop a policy package which can be used by developing countries in the domain covered by UNEP's mandate on trade and environment.

Mehmet Arda introduced UNCTAD's work in the area of trade and environment, with a particular focus on commodity-related issues. Since UNCTAD VIII, UNCTAD's work programme in this field included the following three main issues: (a) improved natural resources management and environmental protection in the commodities sector, (b) expanding the utilization, production and trade in environmentally preferable products and (c) internalization of environmental costs and resource values.

In this context, internalization of environmental costs has been regarded as an issue of overriding importance for inducing changes in consumption, production and trade patterns. So far, the attention in UNCTAD's work was centred on the conceptual aspects, in particular valuation methods, institutional, policy and market failures as well as respective merits and shortcomings of various internalization instruments.

Now the time seems ripe to tackle more practical, implementation-related issues which would be of direct relevance and usefulness to developing countries' needs. A first step in this direction was made by the orientation provided to the Secretariat during the third session of the Standing Committee on Commodities (31 October-4 November 1994). According to its recommendations, the Secretariat should henceforth place emphasis on (a) theoretical and practical work regarding the internalization of environmental externalities, with particular focus on the impact on the environment of main distortions in price formation mechanisms, in particular the impact of subsidies, and on experimental studies for some specific products where internalization would appear to be most readily addressed; (b) improved information about the environmental implications of production, transportation, consumption and disposal of products as well as the links between economic policies and the environment; and (c) improving the applicability of lifecycle analysis to commodity issues.

**Extended outlines of country case studies**

**John Raimondo, Managing Director African Environmental Solutions Limited (South Africa)**

First, Raimondo mentioned several issues related to the environmental policy situation in South Africa. Although environmental impact assessments are not mandatory in South Africa, they are normally carried out. The South African industry can be considered as quite proactive. The environmental standards are quite stringent, but they are not always enforced at a desirable level. Water standards are currently being reformulated. At present, South Africa is in the process of organizing a three year environmental programme.

Second, several questions were raised with regard to the approach that should be followed for the finalization of the case study:

1. Should one rather focus on economic activities, or on environmental problems? Which types of effects were to be considered? Biophysical and/or social effects? International effects?

   Here, it was suggested to start with the environmental impacts, and to determine what could be done in terms of internalization policies, both on a national and international level.

2. How many commodities were to be selected? All commodities or only important export commodities[13]? Should these major export commodities be selected irrespective of the importance of the environmental impact of their production?

   UNCTAD agreed upon the approach of selecting the main export commodities (mining), and of subsequently examining the main environmental impacts associated with their production (mainly water pollution[14]).

3. How will the results of the study be used? Important considerations here were the future use of the results of the study, both for UNCTAD and South Africa.

   The immediate audience of the studies would be policy makers in both South Africa, and other developing countries. In a second instance, the work could also be used as a contribution to UNCTAD's work, at for example intergovernmental meetings.

Third, some other clarifications were proposed:

- Internalization policies are not confined to economic instruments only, but include command-and-control instruments, as well as awareness building instruments;

- The importance of the participation of the mining industry was stressed. Of particular importance were emerging new technologies, the impacts thereof on environmental legislation, and mining rehabilitation. It was also argued that the focus should be on "success stories"; and

- The impacts of the environmental effects generated in one sector upon other sectors should not be neglected.

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[13] South Africa's main commodity exports are mining products, which account for 53 per cent of total exports.

[14] However, with regard to water pollution, it was mentioned that quantitative problems were more important than qualitative problems.

**Walid Gamaleldin, Deputy Director, Technical Cooperation Office for the Environment (Egypt)**

Gamaleldin stressed that he was in favour of the use of a multidisciplinary approach, and that policy makers would be the main target group of his study.

Furthermore, several aspects related to the Egyptian context were considered as very important: the development context[15], the sectoral context, the legal context, the institutional framework, the sociopolitical context, and the international trade context are of particular interest.

Gamaleldin pointed out that he would focus on two main Egyptian commodities: crude oil and cotton, which both make up approximately 89 per cent of the major Egyptian commodity exports in 1993.

The main externalities associated with petroleum are the exploration, drilling, and extraction, as well as transport and refining. The study will put emphasis on those externalities that particularly affect Egypt. The transport of crude oil for example, can have negative impacts on tourism, which is a very important foreign exchange generating activity.

Other elements of the study will be:

- priorities in externality removal;
- policy linkages;
- past experiences with internalizing externalities[16];
- policy interventions for internalization;
- constraints to externality internalization;
- impacts of internalization[17]; and
- international cooperation for internalizing externalities.

Gamaleldin considered that the limited availability of data was a bottleneck for the estimation of environmental costs. It was suggested to use existing studies for these estimations.

**Discussion on a viable operational work programme on internalization**

1. With regard to the case studies, it was stressed that the country studies should be closely linked, so that comparative conclusions could be drawn.

2. Several suggestions were made with regard to future work on internalization to be undertaken by UNCTAD and UNEP.

   First, the necessity of more multidisciplinary work was pointed out.

   Second, more attention should be given to calculation methods of environmental costs[18].

   Third, the importance of an **ex-post** approach was mentioned, with a major focus on repercussions due to internalization policies on competitiveness and leakage effects. Another important comment concerned the development

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[15] The impacts of structural adjustment programmes and privatization were emphasized here.

[16] An example mentioned by the author was a charge on cement.

[17] For example, distributional effects, economic efficiency, and equity criteria.

[18] It was also stressed, however, that some of these costs cannot be expressed in monetary terms.

and analysis of context related characteristics for developing countries.

Fourth, it was argued that the ILO should be associated to the process of work on internalization, and that labour market distortions should be included into the analyses.

Fifth, it was suggested to focus more on eco-regions, and analyze the internalization of external costs due to commodity production in this particular context.

Sixth, the gap between theoretical considerations and implementation of internalization would have to be bridged.

Seventh, more research should be carried out on the economic and ecological impacts of unilateral or multilateral action in the field of internalization.

3. Finally, it was suggested to use e-mail, to continue the exchange of information on progress in the field of internalization of external costs. The Academy and IISD agreed to investigate the possibility and get back to UNCTAD and UNEP with their findings. A need for an enhanced exchange of views, findings, and papers was required. It was decided to start with a definition of internalization through the use of e-mail. Jean-Pierre Reveret agreed that the Academy would take the initiative in this respect.